

What is Claimed:

1. A multi-directional air circulation device for use in a living space, said device comprising:

5 a first housing comprising:

i) a first wall portion defining a first interior space,

ii) a first air outlet, and

iii) a first air directing grill adjacent to said first air outlet;

10 at least a second housing rotatable with respect to said first housing, said second housing comprising:

i) a second wall portion defining a second interior space,

ii) a second air outlet and,

15 iii) a second air directing grill adjacent to said second air outlet; and

at least one air generator, said at least one air generator used to generate at least one air stream, said at least one air stream being

discharged from said device via said first and second air outlets and said first and second air directing grills as at least two air exhaust streams, said at least two air exhaust streams being independently directed from one another.

5 2. The device according to claim 1, wherein said first housing and said at least a second housing rotate about a common axis of rotation.

 3. The device according to claim 1, further comprising more than two housings, each of said housings comprising a respective first end
10 and a respective second end, wherein said more than two housings are aligned substantially end to end such that said first end of said second housing is proximate said second end of said first housing and said respective second end of each successive housing is proximate said respective first end of each preceding housing.

15 4. The device according to claim 1, further comprising a base coupled to one of i) said first housing, ii) said at least a second housing, and iii) between any two housings.

 5. The device according to claim 4, wherein said housings at least one of rotate and oscillate with respect to said base.

6. The device according to claim 4, further comprising an oscillator for oscillating at least one of said housings with respect to said base over a predetermined angular range.

7. The device according to claim 6, wherein said
5 predetermined angular range is at least 30 degrees.

8. The device according to claim 1, further comprising a controller for controlling an operation of said device.

9. The device according to claim 8, wherein said controller further controls at least one of i) speed, ii) rotation, and iii) oscillation of said
10 device.

10. The device according to claim 8, wherein said controller is disposed in a base, said base being coupled to one of said first housing, said at least a second housing, and between any two housings.

11. The device according to claim 1, wherein said air
15 generator further comprises:

a motor at least partially disposed in at least one of said first housing and said at least a second housing; and

at least one air impeller coupled to said motor, said at least one air impeller at least partially disposed in said first housing and said at least a second housing.

12. The device according to claim 11, wherein said air
5 generator is a centrifugal blower.

13. The device according to claim 11, wherein said air impeller is in direct fluid communication with said air directing grills.

14. The device according to claim 1, further comprising:
a base coupled to said first housing, and said air
10 generator further comprises:

a motor at least partially disposed within said base; and

at least one air impeller coupled to said motor, said at least one air impeller at least partially disposed within one of i) said first housing, ii) said at least a second housing, and iii) said base.

15 15. The device according to claim 14, wherein said air generator is a transverse blower.

16. The device according to claim 14, wherein said air impeller is in direct fluid communication with said air directing grills.

17. The device according to claim 1, further comprising a base and respective air inlets in one of i) said first housing, ii) said at least a second housing, and iii) said base to receive inlet air.

18. The device according to claim 17, wherein said first
5 housing and said at least a second housing further comprise respective wall members to divide said first and second interior spaces into respective inlet interior spaces and outlet interior spaces to substantially prevent said exhaust air streams from mixing with said inlet air.

19. The device according to claim 1, wherein said air directing
10 grills each have a plurality of grill elements to direct said air exhaust streams.

20. The device according to claim 19, wherein said plurality of grill elements are at least one of holes disposed in said air directing grills and slats coupled between frame members of said air directing grills.

21. The device according to claim 19, wherein a maximum
15 velocity vector of said air exhaust streams are co-linear to respective centerlines of said air directing grills within an angle of +/- 35 degrees relative to the centerline of said air directing grills.

22. The device according to claim 1, wherein said air directing
grills have a flow through area greater than 60% of an area of said air
20 exhaust streams.

23. The device according to claim 1, wherein a reduction of a velocity of a maximum velocity vector of said air exhaust streams when measured at 18 inches from a face of said air directing grills is less than 80% of a maximum face velocity of said air exhaust streams when measured on the surface of an air exit side of said air directing grills.

24. The device according to claim 1, wherein a maximum face velocity of said air exhaust streams is greater than 475 feet per minute when measured on a surface of said air directing grills where said air exhaust streams exit from said device.

25. The device according to claim 1, wherein said at least a second housing is rotatable with respect to said first housing over an angular range of up to 90 degrees.

26. The device according to claim 1, wherein said at least a second housing is rotatable with respect to said first housing over an angular range of up to 360 degrees.

27. The device according to claim 1, further comprising a mount for coupling said device to a mounting surface.

28. The device according to claim 27, wherein said mount is a bracket coupled between i) at least one of said first housing, said at least a second housing, and said any two housings, and ii) said mounting surface.

29. The device according to claim 27, wherein said mount is rotatably coupled to at least one said first and second housings allowing at least one of manual and automatic rotational movement of said device with respect to said mounting surface.

5 30. The device according to claim 27, wherein said mounting surface is a substantially vertical surface.

31. The device according to claim 1, wherein said air generator further comprises:

 a respective plurality of motors at least partially disposed
10 within said respective housings; and

 a respective plurality of impellers coupled to said plurality of motors and disposed within said respective housings.

32. The device according to claim 1, wherein said first housing and said at least a second housing have one of a substantially
15 polygonal shape or a substantially circular shape.

33. The device according to claim 31 wherein said air generator comprises a plurality of axial fans.

34. The device according to claim 1 further comprising;

a base coupled to said first housing, wherein said air generator is disposed within said base, said air generator providing said at least one air stream into said first housing; and

an air passage formed between said first housing and said
5 at least a second housing for communicating at least a portion of said at least one air stream from said first housing into said at least a second housing.

35. The device according to claim 34, wherein said first housing is coupled to said base to at least one rotate and oscillate with respect to said base.

10 36. The device according to claim 34, wherein at least a portion of said first housing, at least a portion of said at least a second housing, and at least a portion of said base are coupled to one another in a substantially fluid tight relationship.

37. The device according to claim 1, further comprising a
15 controller to control at least one of power to the device, oscillation of at least one of said housings, and a speed of said air generator.

38. The device according to claim 1, wherein said housings are aligned substantially vertically and said device comprises an aspect ratio of a height to the greater of a width, depth or diameter of said device is
20 greater than 2:1.

39. The device according to claim 1, wherein said device is portable and for use on a substantially horizontal mounting surface.

40. A multi-directional air circulation device for mounting onto a surface, the device comprising:

5 base means for coupling with said surface;

 first housing means rotatably coupled to said base means;

 second housing means rotatably coupled to said base means;

10 air generation means disposed within at least one of said base means, said first housing means, and said second housing means to generate at least one air stream, said at least one air stream being discharged from said device as at least two air exhaust streams;

 means for independently directing said at least two air exhaust streams;

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 air outlet means coupled to respective ones of said first and second housing means to provide said at least two air exhaust streams into a surrounding living space; and

air directing means coupled to said air outlet means for directing said at least two air exhaust streams.

41. The device according to claim 40, further comprising control means disposed within at least one of said first housing means, said
5 second housing means, and said base means for controlling at least one of power and motion of said device.

42. The device according to claim 40, further comprising oscillating means disposed within at least one of said first housing means, said second housing means, and said base means for oscillating at least one
10 of said first housing means and said second housing means with respect to said base means.

43. The device according to claim 40, further comprising more than two housings means, wherein said housing means are aligned substantially end to end and rotate substantially about a common axis of
15 rotation.

44. A method for providing multi-directional air circulation within a living space, the method comprising:

rotatably coupling a first housing to a base member;

rotatably coupling at least a second housing to one of said
20 first housing and said base member;

engaging said base member to a surface;

generating at least one air stream within one of said first housing, said at least a second housing, and said base member;

discharging respective air exhaust streams from said first
5 housing and said at least a second housing based on said at least one air stream; and

directing said air exhaust streams into said living space independent from one another.

45. A multi-directional air circulation device for mounting onto
10 a surface, the device comprising:

base means for coupling with said surface;

first housing means rotatably coupled to said base
means;

at least a second housing means rotatably coupled to one
15 of said first housing means and said base means;

air generation means disposed within at least one of said base means, said first housing means, and said second housing means to generate at least one air stream within said device, said at least one air

stream being discharged from said device as at least one air exhaust stream from each housing;

means for independently directing said at least one air exhaust stream from each housing means;

5 air outlet means in respective ones of said housing means to provide said at least one air exhaust stream from each housing means into a surrounding living space; and

air directing means coupled to said air outlet means for directing said at least one air exhaust stream from each housing.